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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,214	03/29/2002	Timothy S. Lehner	BUR920010175	7092
24241	7590	04/06/2006	EXAMINER	
IBM MICROELECTRONICS INTELLECTUAL PROPERTY LAW 1000 RIVER STREET 972 E ESSEX JUNCTION, VT 05452			PROCTOR, JASON SCOTT	
		ART UNIT	PAPER NUMBER	
		2123		
DATE MAILED: 04/06/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/063,214	LEHNER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jason Proctor	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 10 January 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-22 is/are pending in the application.
  - 4a) Of the above claim(s) 11-22 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-10 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 10 January 2006 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | Paper No(s)/Mail Date: _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

Claims 1-10 were rejected and claims 11-22 were withdrawn from examination in the office action of 20 September 2005. Applicants' response has amended claims 1-10.

Claims 1-10 have been rejected.

### *Drawings*

1. The drawings submitted on 10 January 2006 are objected to for the reasons set forth in form PTO-948.

### *Specification*

The substitute specification submitted on 10 January 2006 is in compliance with 37 CFR 1.125 and has been entered.

2. The disclosure is objected to because of the following informalities:

The specification fails to reference FIG. 8 in the "Brief Description of the Drawings."

See MPEP 608.01(f).

Paragraph "p31" appears to contain a typographical error in "V2 in the above equation starts is equal to Vout at the beginning of simulation."

Paragraph "p38" appears to contain a typographical error in "In each instance of a selection of pin voltages, The user measures..."

Paragraph “p46” appears to contain a typographical error in “...and may therefore different at every time point.”

Paragraph “p79” appears to contain a typographical error in “In the case of simulator’s API...”

In paragraph “p80” and after, several references to “code module 25” appear to conflict with the label “circuit module 25” shown in FIG. 7. Some amendments specifically delete the word “circuit” and insert “code,” as in the last line of paragraph “p80”. Is reference 25 of FIG. 7 a “code module,” or a “circuit module,” and are these terms synonymous?

Paragraph “p97” has been changed to paragraph “p957”, where the intent was presumably “p95”.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-10 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Independent claims 1 and 8 under at least one interpretation are drawn to a tangible circuit device. Although several of the limitations in either claim are indefinite and the scope of the invention as a whole is relatively unknown, there appears to be no support in the application as filed for a tangible circuit device. In contrast, the disclosure appears to be directed to an abstract circuit model. As a result, the claims that are drawn to a tangible circuit device are not described by the specification and are not supported under 35 U.S.C. § 112, first paragraph.

Applicants' response (page 9) states that "Applicants have amended independent Claims 1 and 8 to be directed toward a physical IC device, which has elements, which in turn have characteristics and parameters in accordance with a circuit model." There appears to be no support in the disclosure for a physical IC device.

Claims 1, 4, and 6 recite limitations wherein a function is defined in terms of other functions, "collectively". Although the meaning of this claim terminology is indefinite and the scope of the invention as a whole is relatively unknown, there appears to be no support for these limitations in the application. Applicants are respectfully encouraged to cite specific portions of the disclosure which may support these limitations under 35 U.S.C. § 112, first paragraph.

Claims 1-3 and 5-7 recite several limitations which provide circular and conflicting descriptions of the first and second current functions of the invention. Although these claims are indefinite and the scope of the invention as a whole is relatively unknown, there does not appear to be support in the specification for any of these claims. Applicants are respectfully encouraged

to cite specific portions of the disclosure which may support these limitations under 35 U.S.C. § 112, first paragraph.

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-10 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In general, the claims are drafted in language so different from the disclosure that it is impossible to determine the scope of invention defined by the claims. Several claims define a function in terms of other functions, “collectively.” Several claims appear to recite conflicting limitations in a chain of dependency. Because the claim language is so different from the specification, it is impossible to ascertain what is meant by these conflicts or whether the claims are improper dependent claims. The disconnect between the claim terminology and the specification and the several indefinite claims make it difficult to determine which of the recited limitations are indefinite and which are clear in light of the specification.

Applicants’ arguments regarding the rejections under 35 U.S.C. § 112, second paragraph, have been fully considered. The previous rejections under 35 U.S.C. § 112, second paragraph, that are not repeated below have been withdrawn.

The following rejections identify what appear to be clearly indefinite limitations.

5. Claim 1 was previously rejected for reciting “a circuit” defined in terms of intangible components, and therefore not “a circuit.” Claim 1 has been amended to recite “an integrated circuit device comprising elements, wherein the elements comprise characteristics and parameters in accordance with a circuit model, wherein the circuit model comprises [several limitations].” This claim is vague and indefinite.

The scope of this claim is unknown. The claim, as written, is directed toward “an integrated circuit device comprising elements,” but the nature of the “device” is unknown. Is claim 1 directed to a tangible integrated circuit device created from wires, resistors, capacitors, batteries, etc.? All that is known is that the “device” comprises “elements, wherein the elements comprise characteristics and parameters.” Does this language refer to, for example, the value of a resistor in a tangible integrated circuit device? If the prior art were to teach a tangible integrated circuit device with resistors having a size and resistance (characteristics and parameters), would this teaching anticipate the aforementioned claim language?

The claim further defines that “the elements comprise characteristics and parameters in accordance with a circuit model,” however the breadth of this language is enormous. The relationship defined by the phrase “in accordance” does not particularly point out and distinctly claim the invention.

The claim limitations are directed to details of the “circuit model.” A circuit model is an abstract representation of a tangible circuit or its equivalent. Is claim 1 directed to an abstract circuit model rather than a tangible integrated circuit device?

Limitations such as “a first and second current function” encompass an enormous breadth that fail to distinguish the invention from the prior art. In the absence of any positively recited claim limitations defining these functions, any integrated circuit device or any circuit model will have some first and second current function, although those functions may amount to no current at all. Similar analysis applies to limitations such as “a first voltage function,” “a first, second, and third capacitance function,” “an internal impedance function,” etc.

Applicants submit that claim 1 has been amended “to recite a ‘circuit device comprising elements, wherein the elements comprise characteristics and parameters in accordance with a circuit model’ to comply with the requirements of 35 U.S.C. § 112, second paragraph.” The Examiner is unable to identify how the present amendments overcome the previous grounds for rejection, specifically that it is unclear whether claim 1 is drawn to a tangible integrated circuit device or, in contrast, to an abstract circuit model.

6. Similar analysis applies for claim 8. The Examiner is aware of no such object as “an impedance” which can be “connected to the output node and ground.” To the best of the Examiner’s knowledge, impedance is a property, not an object or element with connections.

7. Applicants’ response (page 9) states that “Applicants have amended independent Claims 1 and 8 to be directed toward a physical IC device, which has elements, which in turn have characteristics and parameters in accordance with a circuit model.” This statement in the record appears to substantiate the Examiner’s interpretation of claims 1 and 8 and further necessitates this rejection under 35 U.S.C. § 112, second paragraph.

8. Claims 1, 4, and 6 recite claim language including a “function” that is a “function of [several limitations], collectively.<sup>1</sup>” It is unknown if this claim language is an attempt at defining a conjunctive or disjunctive list of limitations. It is unknown if every recited element in the list is required to define the recited “function”. In general, it is unknown what that term “collectively” means in the context of defining a function.

9. Claim 4 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unknown what is meant by “a near capacitor function,” “a resistor function,” or “a far capacitor function.” The Examiner has reviewed the specification and cannot identify where support for this terminology exists.

10. Claim 5 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 depends upon claims 3, 2, and 1. Claim 5, when written as an independent claim, incorporates all the limitations of the claims from which it depends. See 37 CFR 1.75. Claim 5, when written in independent form, contains *inter alia* the following limitations:

“wherein the output node has a value that is a function of the first and second current function...” (claim 1)

“wherein the first and second current functions are subsequently functions of the input node voltage value and the output node voltage value” (claim 2)

“wherein the first current function is a function of a p-block behavioral model, and the second current function is a function of an n-block behavioral model” (claim 5)

In addition to presenting what appears to be a circular definition for the first and second current function (the first and second current function are functions of the output node voltage; the output node has a value that is a function of the first and second function), the language of claim 5 appears to define “a p-block (or n-block) behavioral model” as a narrower recitation of “the input node voltage and output node voltage.” Barring this interpretation, claim 5 is an improper multiple dependent claim for failing to further limit a parent claim. Regardless, the precise meaning of claim 5 is unknown for the reasons set forth above and the claim is therefore vague and indefinite.

11. Claim 6 exacerbates the indefiniteness of claim 5, from which it depends. Claim 6 appears to reinstate a portion of the limitations of claim 2 by reciting, “wherein the first current function is a function of each of the input and output node values, collectively.” It is at least unclear how this limitation defines the first current function differently from claim 2, and appears to be an improper dependent claim in light of the limitations of claim 5.

12. Claim 6 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 6 appears to contain grammatical errors that render the meaning of the

claim unclear. Specifically, claim 6 does not contain a verb in the independent clause. It is therefore impossible to determine what Applicants' intended limitation might be and therefore will not be treated on the merits.

13. Claim 7 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 suffers deficiencies similar to claims 5 and 6. The limitations of claim 7 do not further limit the invention as defined by claim 5. It is unclear how to interpret claim 7 when considered in independent form. Does claim 7 define "a function of a p-block behavioral model" as synonymous with "configured to be functionally dependent on a first plurality of input node voltage values and a second plurality of output node voltage values?" Similar problems exist regarding "a second current function" as recited by claim 7.

Claims rejected but not specifically mentioned stand rejected by virtue of their dependence.

*Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 1-10 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

Independent claims 1 and 8 are interpreted as being directed to a “circuit model” in order to resolve several rejections under 35 U.S.C. § 112 as set forth above. These interpretations are in keeping with what Applicants’ have invented, as best understood by the Examiner. (See, for example, specification, paragraphs 0014, 0027). However, a circuit model is nonstatutory because it is not a specific machine or apparatus, but is instead an abstract, intangible description of a real circuit’s behavior. As such, a circuit model itself is nonfunctional descriptive material. Please see MPEP 2106 (IV)(B)(1).

Whenever practicable, Examiners should indicate how rejections under 35 U.S.C. § 101 may be overcome and how problems may be resolved. The Examiner cannot make such an indication in this case because of the teachings of the disclosure and the entirety of the claims, both of which are clearly directed to an abstract circuit model.

Applicants’ arguments have been fully considered but have been found unpersuasive. The amendments to claims 1 and 8 appear to define an invention that is separate and distinct from what Applicants have disclosed as inventing.

To expedite a complete examination of the instant application the claims rejected under 35 U.S.C. § 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

***Prior Art***

MPEP 2143.03 states:

A claim limitation which is considered indefinite cannot be disregarded. If a claim is subject to more than one interpretation, at least one of which would render the claim unpatentable over the prior art, the examiner should reject the claim as indefinite under 35 U.S.C. 112, second paragraph (see MPEP § 706.03(d)) and should reject the claim over the prior art based on the interpretation of the claim that renders the prior art applicable. *Ex parte Ionescu*, 222 USPQ 537 (Bd. Pat. App. & Inter. 1984) (Claims on appeal were rejected on indefiniteness grounds only; the rejection was reversed and the case remanded to the examiner for consideration of pertinent prior art.). Compare *In re Wilson*, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970) (if no reasonably definite meaning can be ascribed to certain claim language, the claim is indefinite, not obvious) and *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962) (it is improper to rely on speculative assumptions regarding the meaning of a claim and then base a rejection under 35 U.S.C. 103 on these assumptions).

Claims 1-10 have been rejected under 35 U.S.C. § 112, second paragraph, because it is unclear whether the claims are directed to a tangible circuit device or an abstract circuit model. Applicants have stated in the record that the claims are directed toward “a physical IC device.” Claims 1-10 have been rejected under 35 U.S.C. § 112, first paragraph, as lacking written description for the claimed invention when interpreted as “a physical IC device”.

Therefore, it is impossible to interpret the metes and bounds of the claims in this application, in light of the specification and prosecution history, without relying on speculative assumption. A rejection under 35 U.S.C. § 103 would be improper in this application as set forth in MPEP 2143.03.

The previous rejections under 35 U.S.C. § 103 have been withdrawn. Applicants’ arguments regarding the prior art have been considered but are moot.

Although the claims have been rejected as indefinite and it is unknown where in the disclosure support for the claimed invention exists, the Examiner has cited what appears to be the most relevant prior art.

37 CFR 1.111(c) states:

In amending in reply to a rejection of claims in an application or patent under reexamination, the applicant or patent owner must clearly point out the patentable novelty which he or she thinks the claims present in

view of the state of the art disclosed by the references cited or the objections made. The applicant or patent owner must also show how the amendments avoid such references or objections.

Although the following is not a rejection under 35 U.S.C. §§ 102 or 103, Applicants are required by 37 CFR 1.111(c) to point out the patentable distinction of any claimed invention over the prior art references.

“Electronic Devices, Second Edition” by Thomas L. Floyd (copyright 1988) discloses a circuit and/or circuit model (Figure 11-5, page 393) comprising a first capacitor connected to the input node and output node [“C”], an input capacitor connected to the input node and to ground [“ $C(A_v+1)$ ”], and an output capacitor connected to the output node and ground [“ $C((A_v+1)/A_v)$ ”]. Although Floyd does not explicitly describe “an internal impedance connected to the output node and ground,” such a property is inherent to the physical nature of the depicted circuit. The impedance may be infinitely high or infinitely low, nevertheless the impedance is present.

“An ideal current source connecting an output node to a voltage supply” is an inherent characteristic of a circuit, which by definition generally connects an input and an output to a voltage supply. It is this arrangement that defines the components as a circuit.

Floyd discloses the circuit device described above or its equivalent (Figure 11-7, page 394) further comprising “an output load, having a near capacitor [“ $C_3$ ”], a resistor [“ $R_L$ ”], and a far capacitor [“ $C_2$ ”].

The various functions and output values are inherent in the circuits described by Floyd. Although Floyd does not explicitly describe the functions, they are nevertheless present in the circuits. The functions, which Applicants have not expressly defined in the claims, may be constant functions equal to 0.

*Conclusion*

Art considered pertinent by the examiner but not applied has been cited on form PTO-892.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Proctor whose telephone number is (571) 272-3713. The examiner can normally be reached on 8:30 am-4:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached at (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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